

Factoring Polynomials Completely

Factor by grouping.

1. $c^2 - cx + cd - dx$ _____

2. $cd + 4c + 3d + 12$ _____

3. $xy + 7x - 4y - 28$ _____

4. $x^2 - y^2 + nx + ny$ _____

Factor completely.

5. $5y^2 - 20$ _____

6. $3a^2 + 15a + 18$ _____

7. $-a^3 - 216$ _____

8. $6a^3 + 32a^2 + 10a$ _____

9. $x^4 - 16$ _____

10. $y^4 - 13y^2 + 36$ _____

11. $2d^6 - 54d^3$ _____

12. $x^4 - 8x^2 + 16$ _____

Applications

13. **Geometry** The area of a lot is $2x^2 - 4x - 30 \text{ m}^2$. Express the area in completely factored form.
- _____

14. **Geometry** The volume of a box is $x^3 - x^2 - 6x \text{ cm}^3$. Express the volume in completely factored form.
- _____

MIXED PRACTICE

Factor completely.

15. $z^2 + 17z + 42$ _____

16. $27n^3 - 1$ _____

17. $3c^3 - 36c^2 + 60c$ _____

18. $100r^2 - 81z^2$ _____

19. $25d^2 - 20d + 4$ _____